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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LAZARO, DAVID R	
ART UNIT	**PAPER NUMBER**
2155	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/774,976	MARTIJA ET AL.	
	Examiner	Art Unit	
	David Lazaro	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the RCE filed 05/31/05.

2. Claims 1-22 are pending in this office action.

Response to Amendment/Affidavit

3. The affidavit filed on 05/31/05 under 37 CFR 1.131 is sufficient to overcome the reference U.S. Patent Application Publication 2002/0087666 by Huffman et al.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 12, 13, 17, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by "User location and tracking in an In-Building Radio Network" by Bahl et al., Microsoft Research Technical Report, MSR-TR-99-12, published February 1999 (Hereinafter Bahl).

6. With respect to Claim 1, Bahl teaches a method for determining a geographical region of a host in a network, said method comprising the steps of: selecting other hosts in the network such that the selected other hosts are located in a plurality of geographical regions that are determinable (page 5 - the first column with particular attention to measured signal strengths and location data. Pages 3-4 , section 3.2,

describing the measurement of signal strengths at known locations); determining, at a plurality of points in the network, first sets of information associated with the selected other hosts, respectively (page 5 - the first column. Pages 3-4 describe the measurement of signal strengths at known locations. The gathered measurements "signal strengths" at multiple locations can be considered "sets of information"); determining, at the plurality of points, second sets of information associated with the host (Page 5 - first column, particularly noting the "observed set" of measurements); and determining the geographical region of the host based on the geographical region of one or more of the selected other hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information (Pages 4-5 - section 4.0, particularly the last 2 paragraphs).

7. With respect to Claim 12, Bahl teaches all the limitations of Claim 1 and further teaches receiving, from the plurality of points, the first sets of information associated with the selected other hosts; and merging the first sets of information received for each of the other hosts (Pages 3-4 , section 3.2 and Pages 4-5 - section 4.0).

8. With respect to Claim 13, Bahl teaches all the limitations of Claim 1 and further teaches receiving, from the plurality of points, the second sets of information associated with the host; and merging the first sets of information received for the host (Pages 4-5 - section 4.0).

9. With respect to Claim 17, Bahl teaches a plurality of first processors that determine first sets of information associated with a plurality of first hosts located in a plurality of geographical regions that are determinable (page 5 - the first column with

particular attention to measured signal strengths and location data. Pages 3-4 , section 3.2, describing the measurement of signal strengths at known locations), and determine second sets of information associated with a second host whose geographical region is unknown(Page 5 - first column, particularly noting the "observed set" of measurements); and at least a second processor that receives the first and second sets of information, determines means of the first sets of information by geographical region, and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information (Pages 4-5 - section 4.0, particularly the last 2 paragraphs).

10. With respect to Claim 18, Bahl teaches all the limitations of Claim 17 and further teaches wherein the plurality of first processors are placed at different points in a network that includes the plurality of first hosts and the second host (Pages 3-5, section 3.2 and section 4.0).

11. With respect to Claim 20, Bahl teaches an apparatus, comprising: a memory including, program code that receives first sets of information associated with a plurality of first hosts located in a plurality of geographical regions that are determinable (page 5 - the first column with particular attention to measured signal strengths and location data. Pages 3-4 , section 3.2, describing the measurement of signal strengths at known locations. The gathered measurements "signal strengths" at multiple locations can be considered "sets of information"), receives second sets of information associated with a second host whose geographical region is unknown (Page 5 - first column, particularly

noting the "observed set" of measurements), and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information (Pages 4-5 - section 4.0, particularly the last 2 paragraphs); and a processor that executes the program code (Pages 3-4, section 3.2).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahl in view of U.S. Patent 5,969,679 by Bolliger et al. (Bolliger).

14. With respect to Claim 2, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example, signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose

the measured information includes time delays such that the step of determining the first sets of information comprises the step of determining time delays in communicating with the selected other hosts from the plurality of points, respectively. Bolliger teaches that time delay measurements can be used as a distance metric to infer a geographic location (Col. 2 lines 15-36). This allows for a simple determination of a geographic region of an operating station (Col. 1 line 58 - Col. 2 line 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by Bolliger such that the method further comprises the step of determining the first sets of information comprises the step of determining time delays in communicating with the selected other hosts from the plurality of points, respectively. One would be motivated to have this, as there is desire for determining the geographic region of an operating station (In Bolliger: Col. 1 line 58 - Col. 2 line 14).

15. With respect to Claim 7, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example, signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose

the measured information includes time delays such that the step of determining the first sets of information comprises the step of determining time delays in communicating with the host from the plurality of points, respectively. Bolliger teaches that time delay measurements can be used as a distance metric to infer a geographic location (Col. 2 lines 15-36). This allows for a simple determination of a geographic region of a operating station (Col. 1 line 58 - Col. 2 line 14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by Bolliger such that the method further comprises the step of determining the first sets of information comprises the step of determining time delays in communicating with the host from the plurality of points, respectively. One would be motivated to have this, as there is desire for determining the geographic region of an operating station (In Bolliger: Col. 1 line 58 - Col. 2 line 14).

16. Claim 3, 8, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahl in view of U.S. Patent 6,724,733 by Schuba et al. (Schuba).

17. With respect to Claim 3, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example, signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can

determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose determining the number of hops in one or more routes. Schuba teaches a characteristic of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method of Bahl and modify it as indicated by Schuba such that the step of determining the first sets of information comprises the step of: determining number of hops in one or more routes in the network from the plurality of points to the selected other hosts, respectively. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (In Bahl: Page 1 - Abstract and Introduction).

18. With respect to Claim 8, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example, signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose determining the number of hops in one or more routes. Schuba teaches a characteristic

of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method of Bahl and modify it as indicated by Schuba such that the step of determining the first sets of information comprises the step of: determining number of hops in one or more routes in the network to the host from the plurality of points, respectively. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (In Bahl: Page 1 - Abstract and Introduction).

19. With respect to Claim 21, Bahl teaches all the limitations of Claim 20 but does not explicitly disclose the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts. Schuba teaches a characteristic of a communication route can take into consideration time delays as well as the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the system of Bahl and modify it as indicated by Schuba such that the system further comprises the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts. Since time delays as well as the number of hops are indicative of an approximate distance, one would be motivated to have this, as there is need for

determining the geographic location of a host (In Bahl: Page 1 - Abstract and Introduction).

20. With respect to Claim 22, Bahl teaches all the limitations of Claim 20 but does not explicitly disclose the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts and the second host. Schuba teaches a characteristic of a communication route can take into consideration time delays as well as the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the system of Bahl and modify it as indicated by Schuba such that the system further comprises the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts and the second host. Since time delays as well as the number of hops are indicative of an approximate distance, one would be motivated to have this, as there is need for determining the geographic location of a host (In Bahl: Page 1 - Abstract and Introduction).

21. Claims 4-6, 9-11, 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahl in view of "GTrace - A Graphical Traceroute Tool", USENIX LISA'99 (GTrace).

22. With respect to Claim 4, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example,

signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose determining geographic information for the last identifiable routers in respective routes. GTrace teaches the use of traceroute in determining geographical regions, which would include the IP addresses of the last identifiable routers in a respect path (Page 1 Section 2 – "Traceroute"). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by GTrace such that the method further comprises determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the selected other hosts. One would be motivated to have this as geographical path information of a network route can provide valuable insight to system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

23. With respect to Claim 5, Bahl in view of GTrace teaches all the limitations of Claim 4 and further teaches wherein the step of determining the geographical information comprises the step of: determining longitudes of the last identifiable routers in the respective routes (In GTrace: Pages 5-6, section 33.5).

24. With respect to Claim 6, Bahl in view of GTrace teaches all the limitations of Claim 4 and further teaches wherein the step of determining the geographical information comprises the step of: determining latitudes of the last identifiable routers in the respective routes (In GTrace: Pages 5-6, section 33.5).

25. With respect to Claim 9, Bahl teaches all the limitations of Claim 1, and in general, teaches that certain measured information related to a node, for example, signal strength, in a network can be used to infer a geographic location, (Page 4 , section 4.0, second paragraph starting with "A basic premise..."). Bahl teaches that such information can be used in the basic approach of triangulation (Page 5, first paragraph). Basically, by taking measured information of known locations and comparing them with similar measured information observed at a certain node, one can determine a geographic region through use of a distance measure such as the Euclidean distance measure (Pages 4-5, section 4.0). Bahl does not explicitly disclose determining geographic information for the last identifiable routers in respective routes. GTrace teaches the use of traceroute in determining geographical regions, which would include the IP addresses of the last identifiable routers in a respect path (Page 1 Section 2 – "Traceroute"). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by GTrace such that the method further comprises determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the host. One would be motivated to have this as geographical path information of a network route can provide valuable insight to

system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

26. With respect to Claim 10, Bahl in view of GTrace teaches all the limitations of Claim 9 and further teaches wherein the step of determining the geographical information comprises the step of: determining longitudes of the last identifiable routers in the respective routes (In GTrace: Pages 5-6, section 33.5).

27. With respect to Claim 11, Bahl in view of GTrace teaches all the limitations of Claim 9and further teaches wherein the step of determining the geographical information comprises the step of: determining latitudes of the last identifiable routers in the respective routes (In GTrace: Pages 5-6, section 33.5).

28. With respect to Claim 14, Bahl teaches all the limitations of Claim 1 but does not explicitly disclose parsing names of the selected other hosts to determine geographical information about the selected other hosts. GTrace teaches parsing names of hosts to determine geographical information (Page 5 – "Domain Parsing files"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by GTrace such that the method further comprises parsing names of the selected other hosts to determine geographical information about the selected other hosts; and including the determined geographical region information in the first sets of information. One would be motivated to have this as geographical path information of a network route can provide valuable insight to system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

29. With respect to Claim 19, Bahl teaches all the limitations of Claim 17, but does not explicitly disclose the first sets of information include traceroute information associated with the plurality of fist hosts, respectively. GTrace teaches the use of traceroute information in determining geographical regions of hosts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the system disclosed by Bahl and modify it as indicated by GTrace such that the system further includes the first sets of information include traceroute information associated with the plurality of fist hosts, respectively. One would be motivated to have this as geographical path information of a network route can provide valuable insight to system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

30. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahl in view of "Applied Multivariate Analysis" by Winston (Winston).

31. Note: The Winston reference is described in applicants' specification on page 15.

32. With respect to Claim 15, Bahl teaches classifying the selected other hosts according to their respective geographical region (Pages 3-4, section 3.2), determining mean vectors of the first sets of information associated with the classified selected other hosts (Pages 4-5, section 4.0); and determining the distance of the determined mean vectors from the second sets of information, through the Euclidean distance method by example (Pages 4-5 section 4.0, particularly last 2 paragraphs). Bahl further teaches other distance methods may be used (Pages 4-5 section 4.0, particularly last 2

paragraphs), but does not explicitly disclose the Mahalanobis distance method. However, Winston teaches how to determine the Mahalanobis distance (pp. 373-383 as noted by applicants on page 15 of the specification). Furthermore, in some cases, the Euclidean distance is the same as the Mahalanobis distance depending on the covariance matrix and the identity matrix. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Bahl and modify it as indicated by Winston such that the method further comprises determining Mahalanobis distances of the determined mean vectors from the second sets of information. One would be motivated to have this since the Mahalanobis distance method is known and Bahl explicitly suggests the use of other distance methods (In Bahl: Pages 4-5 section 4.0, particularly last 2 paragraphs).

33. With respect to Claim 16, Bahl in view of Winston teaches all the limitations of Claim 15 and further teaches selecting one of the determined mean vectors with the shortest Mahalanobis distance from the second sets of information (In Bahl: Pages 4-5 section 4.0, particularly last 2 paragraphs); and determining the geographical region of the host to be same as the geographical region of the classified selected other hosts whose respective determined mean vector is the selected one of the determined means (In Bahl: Pages 4-5 section 4.0, particularly last 2 paragraphs).

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

35. U.S. Patent 6,832,253 by Auerbach "Proximity as an aid to caching and secondary serving of data" December 14, 2004. Discloses the use of metrics such as latency and hop counts in regards to proximity of a network host.

36. U.S. Patent 6,757,740 by Parekh et al. "Systems and methods for determining collecting and using geographic locations of internet users" June 29, 2004. Discloses the determination of a geographic location of a user based on information acquired along a route to the user.

37. U.S. Patent 6,684,250 by Anderson et al. "Method and Apparatus for estimating a geographic location of a networked entity" January 27, 2004. Claims priority to a provisional application filed April 3, 2000. The provision application however suggests time delays are not useful in determining a geographic location.

38. "Determining the Geographic Location of Internet Hosts" by Padmanabhan et al., Microsoft Research Technical Report, MSR-TR-2000-110, published November 2000. Discloses GeoPing which is an extension of the relied upon Bahl reference in terms of using Nearest Neighbors in Delay Space. Makes use of time delays in determining geographic location. Not relied upon due to publishing date.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lazaro
July 8, 2005

SALEH NAJJAR
PRIMARY EXAMINER